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EXAMINER

GARCIA, ERNESTO

ART UNIT

PAPER NUMBER

3679

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/017,924

Applicant(s)

HUANG ET AL.

Examiner

Ernesto Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 26-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-25, drawn to an interface between a driving member and a driven member, a method of interfacing a driving member with a driven member, a coupling, classified in class 403, subclass 383.
- II. Claims 26-29, drawn to a method of manufacturing an axle pinion gear, classified in class 29, subclass 893.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by molding or injection molding.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with David W. Okey on March 19, 2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-25. Applicant in replying to this Office action must make affirmation of this election. Claims 26-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "32" has been used to designate both a journal transitioning with the polygonal surface 30 (Fig. 2) and a journal without a transition and next to a first portion 30a (Fig. 5); and furthermore, reference character "24" has been used to designate both a driven member (axle pinion gear) without a twist (Fig. 2) and a driven member with a twist and no gear (Fig. 5).

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the portion of the polygonal length of the driving member 38 being twisted (claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to because the longitudinal axis 25 on the right side of 24 does not align with the axis 25 on the left side of the 24. The examiner wonders whether the axis 25 on the right side of Figure 24 should be offset and renumbered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: A and B in Figure 5.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities: reference character 32 has been described as a journal on page 8 in line 5 and a bearing surface

on page 8 in line 19, which the descriptions are not compatible. Appropriate correction is required.

### ***Claim Objections***

Claims 16 and 19 is objected to because of the following informalities:

regarding claim 16, "driven member" in line 1 should read --shaft--; and,

regarding claim 19, the limitation "the driven member is a" should be --the--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 16 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 3, 16 and 22, the limitation "a male polygonal length" in line 2 is unclear whether this length is different than the polygonal length as recited in claims 14, 20, respectively., or indicating that the polygonal length is a male polygonal length.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-7, 9-16, 18, 20-22, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by the German patent 3,511,534.

Regarding claim 1, the German patent discloses in Figure 2 an interface comprising a driving member **12** and a driven member **5**. The driving member **12** has a polygonal length **8** having at least one surface selected from a group consisting of concave surfaces, convex surfaces and straight surfaces. The driven member **5** has a matching polygonal length **13,13'**. A portion **10** of the polygonal length of the driving member **12** or the driven member **5** is twisted along an axis of the polygonal length **8**.

Regarding claim 2, twisting is from 0 degrees 10' to about 1 degrees.

Regarding claim 3, the driving member **12** comprises a shaft having the polygonal length **8** being a male polygonal length.

Regarding claim 5, the driving member **12** comprises a shaft having the polygonal length **8** being a male polygonal length with at least one portion of the length twisted from about 0 degrees 20' to about 0 degrees 50'.

Regarding claim 6, the driving member **12** or the driven member **5** is straight.

Regarding claims 7, 17 and 23, the polygonal length **8** has a relative eccentricity of from about 1.5% to about 4%.

Regarding claims 9-12, given the interface of the German patent, the method of interfacing the driving member with the driven member is anticipated by the German patent.

Regarding claim 13, the driving member **12** and the driven member **5** comprise one of a group consisting of a compressor, a pump, a machine tool, a mechanical drive, a generator, and a motor.

Regarding claim 14, a coupling comprising a shaft **5** and a mounting device **12**. The shaft **5** having a polygonal length **8** selected from a group consisting of concave surfaces, convex surfaces and straight surfaces. The mounting device **12** has a matching polygonal length **13,13'**. The shaft **5** or the mounting device **12** is twisted from about 0 degree 10' to about 1 degree.



Regarding claim 15, the mounting device **12** comprises a flange.

Regarding claim 16, as best understood, the polygonal length of the shaft **5** is a male polygonal length. A portion of the length of the shaft is twisted from 0 degree 20' to about 50 radians.

Regarding claim 18, the shaft **5** or the mounting device **12** is straight.

Regarding claim 20, the German patent discloses a coupling comprising a driving member **5** and a driven member **12**. The driving member **5** has a polygonal length. The driven member **12** has a matching polygonal length. At least a portion **10** of the driving member **5** or the driven member **12** has a twist \*6\* of from about 0 degree 10' to about 1 degree.

Regarding claim 21, the driving member **5** is selected from a group consisting of an axle, a half axle and a shaft.

Regarding claim 22, the polygonal length of the driven member **12** is a male polygonal length.

Regarding claim 25, the driving member **5** or the driven member **12** is straight.

Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Bender, et al., RE34,612.

*Bender et al. et.*

Regarding claim 1, ~~the German patent~~ discloses in Figure 2 an interface comprising a driving member **60** and a driven member **66**. The driving member **60** has a polygonal length (col. 4, line 52) having at least one surface selected from a group consisting of concave surfaces, convex surfaces and straight surfaces. The driven member **66** has a matching polygonal length (col. 4, line 68 - col. 5, line 1; see Fig. 5). A portion **64** of the polygonal length of the driving member **60** or the driven member **66** is twisted along an axis of the polygonal length.

Regarding claim 4, the interface further comprises a second twist (the twist is a second portion after the twist and which aligns with a portion before the twist) along the axis of the length. The second twist is in a direction opposite the portion **64** twisted.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the German patent 3,511,534, in view of Bunce, 5,899,813.

Regarding claims 8 and 19, the German patent, as discussed above, discloses the driven member **5** comprises a shaft with the polygonal length with a number of sides selected from a group consisting of 3 to 12; however, the German patent fails to disclose the polygonal length being a concave male polygonal length. Dymerski et al. suggest that in prior art designs polygonal length have been known to be designed as concave polygonal lengths (col. 2, lines 56-61). Therefore, as taught by Bunce, it would have been obvious to one of ordinary skill in the art at the time the invention was made to design the polygonal length be a concave polygonal length as part of a design choice.

Regarding claim 24, the German patent, as discussed above, discloses the driven member **12** comprises a shaft with the polygonal length with a number of sides selected from a group consisting of 3 to 12; however, the German patent fails to disclose the polygonal length being a concave male polygonal length. Dymerski et al. suggest that in prior art designs polygonal length have been known to be designed as concave polygonal lengths (col. 2, lines 56-61). Therefore, as taught by Bunce, it would have been obvious to one of ordinary skill in the art at the time the invention was made

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to design the polygonal length be a concave polygonal length as part of a design choice.

### ***Conclusion***

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newell, Jamison et al., Dymerski et al. show a similar interface or coupling.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 703-308-8606. The examiner can normally be reached from 8:30-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on 703-308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.

  
**Lynne H. Browne**  
**Supervisory Patent Examiner**  
**Technology Center 3600**

E.G.

March 21, 2003